

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

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ADVANCED-REGISTRY TESTING OF DAIRY COWS*

BY F. W. WOLL AND PAUL I. DOUGHERTY

Official Advanced-Registry testing is the best guide and incentive to the breeding of good dairy cattle that has ever been devised. It is a nation-wide system within each of the dairy breeds, by which the actual milk and butter-fat production of pure-bred cows is determined and recorded by competent disinterested persons. Its coming awaited the invention of the Babcock test, and it has assumed an ever-increasing importance since the beginning of the present century. As compared with the history of the breeds whose development it guides, it is still in its very infancy. Yet its influence has been so profound that no previous score of years has showed such striking progress in increasing dairy production as the last twenty. Families and strains prepotent in transmitting a markedly high production have been discovered and used in advancing the whole breed to new levels of production. It is a definite guide which helps the breeder to more clearly and intelligently proceed to the molding, building and accumulation of those factors of production which had previously remained so obscure and intangible.

In establishing their system of Advanced Registry or Register of Merit, the different breed associations enlisted the coöperation of the various state agricultural colleges as the supervising agencies for all such testing in their respective states. The agricultural colleges gradually worked out definite requirements and checks in the conduct of the dairy tests in order to safeguard the good name of the tests and insure the accuracy of the records made. The breed associations in their turn have standardized their requirements and methods of procedure so that the main features of the work are now alike in all breeds.

* The Ayrshire Breeders' Association, the Brown-Swiss Cattle Breeders' Association, the American Guernsey Cattle Club, the Holstein-Friesian Association of America, and the American Shorthorn Breeders' Association have established Advanced Registries and the American Jersey Cattle Club a Register of Merit, all of which are based on the production of butterfat by cows as shown in tests conducted by the various agricultural colleges. This circular describes the conditions under which the tests are conducted in this state and gives some of the more important results obtained during the past year.

Advanced-Registry records have primarily been made as a guide to breeding; but they have been of great financial benefit to owners also through increasing the values of high-producing cows. The advertisements of breeders everywhere show the stress which they put on Advanced-Register tests, and the prices paid at auctions and private sales for animals with official records, or for near relatives of such animals, testify to the direct value of the dairy tests to the breeder and the dairying industry in general.

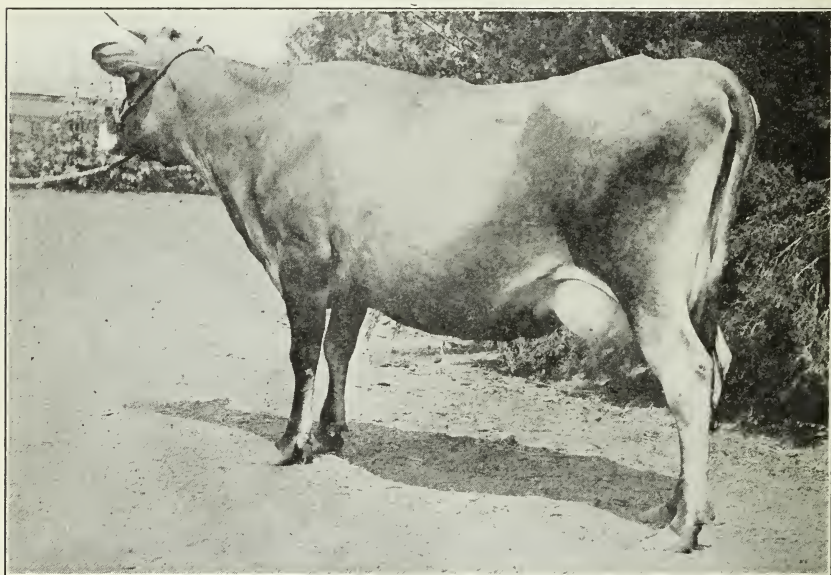


Fig. 1. Interested Jap's Santa, 296928, Record Jersey cow for California: 15,569.4 lbs. milk, 940.72 lbs. butterfat (ave. test, 6.04 per cent) for one year at 5 yrs. 7 mos. old. Owner, University of California, Davis, Calif.

Advanced-Registry Testing in California.—The work in this state is in charge of the Animal Husbandry Division of the College of Agriculture of the University of California, with its headquarters at University Farm, Davis. The first tests were conducted in 1903. Since that time the work has steadily grown until at the present time from twenty to thirty supervisors are employed continuously.

Two types of testing are now in general practice: "long-time" or semi-official yearly tests conducted for all dairy breeds, and "short-time" or strictly official tests carried on for the Holstein-Friesian Association alone.

Semi-official or Long-time Tests.—In the so-called semi-official tests for yearly and ten-month records, the milk and butterfat production

of the cows for two consecutive days every month is determined and the average per cent of fat for this period is taken to represent the average quality of the milk for the month. The results of this test are reported to the secretary of the breed association concerned, to whom the owner of the cows reports the daily milk yields on the completion of each month; by multiplying the average per cent of fat in the milk for the two-day testing period by the total milk production during the month the estimated production of butterfat for the month is ascertained. The sum of credits for the months in a year



Fig. 2. Belladia, 31909, Record Guernsey cow for California: 19,631.9 lbs. milk, 934.05 lbs. butterfat (ave. test, 4.77 per cent) for one year at 6 yrs. 5 mos. old. Owner, W. H. Dupee, Santee, Calif.

during which the cow gives milk or for ten consecutive months makes th record for the year or the ten-month period, respectively. A ten-month (or 305-day) record period was first used in this country in the conduct of the California State Dairy Cow Competition,¹ and has been lately adopted by the Holstein-Friesian Association and the American Jersey Cattle Club. The fact that this record period largely does away with the temptation to prolong the milking period of cows beyond that followed in common dairy practice, and does not work against normal regular breeding of the cows, accounts for the favor which it has met with among breeders of dairy cattle.

The milk-yields reported by the owner are checked up in various ways by the respective breed associations so that they are doubtless,

¹ Bulletin 301, College of Agriculture, University of California, Nov., 1918.

as a rule, accurate. While the figures for the production of butterfat for any one month obtained as described may not be absolutely correct, the yearly production calculated from the sum of the monthly data will be practically so, viz., within at least a couple of per cent of the actual production, since any errors that may have occurred in the figures for the separate months through the assumption that the average quality of the milk for the month corresponds to that for the two-day testing period, will be evened up in the course of a year or ten months.

The following summary of the past six months shows the present status and the trend in this state in regard to long-time tests:

	Holstein		Jersey		Guernsey		Ayrshire		Milking Shorthorn		Total	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows
1919												
Aug.	18	146	16	115	10	57	3	11	1	5	48*	334
Sept.	18	179	18	134	8	43	3	10	1	6	48*	372
Oct.	18	188	20	155	8	46	3	11	1	4	50*	404
Nov.	22	200	21	163	8	51	4	15	1	5	56*	424
Dec.	22	205	20	131	7	49	4	17	1	6	54*	408
1920												
Jan.	29	232	24	166	7	51	3	14	2	7	65*	470

* 45, 45, 47, 53, 51, and 62 different herds, respectively.

Requirements for Advanced Registry.—A 365-day and a 305-day record period are now recognized both by the American Jersey Cattle Club and the Holstein-Friesian Association of America. The butterfat requirement for admission to advanced registry in the four principal breeds tested in California is the same: A heifer two years old or younger must produce 250.5 lbs. of butterfat in 365 days. This requirement is raised .1 lb. for each day until the cow reaches five years of age. The requirement from then on is 360 lbs. of butterfat regardless of age. The requirements for 10-months' records are the same as for 12-months' records in the case of Jerseys, and 30 lbs. less in the case of Holsteins. In addition the cow must drop a living calf thirteen and fourteen months from last freshening, in case of Jerseys and Holsteins respectively.

The leading records on long-time tests for California cows will be found on page 11 of this circular.

Short-time Official Tests.—Official tests cover periods from seven days up, during which time the supervisor is present at each and every milking, weighs, samples and tests the milk, and certifies to the correctness of the record of production made by the cow during the test period.

In a few cases official tests have been carried through an entire year on certain animals. A California cow, Aaggie Acme of River-

side 2d, holds the breed record for butterfat production made under such conditions (p. 13). Another cow, Raphaella Johanna Aaggie 3d, holds the "strictly official" breed record for milk production for one year (p. 14).

The "strictly official" or short-time tests are now carried on in the Holstein breed alone. Despite a marked trend toward longer time testing, short-time tests continue in large numbers in this State. The

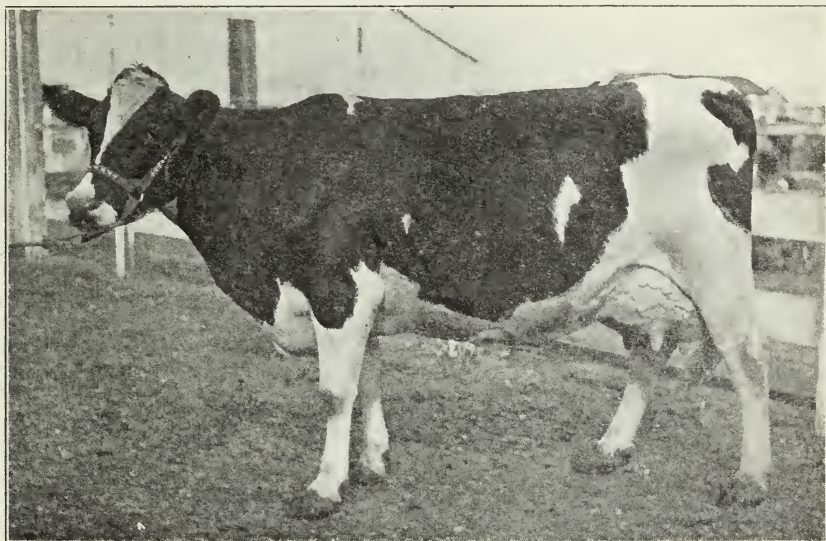


Fig. 3. Aaggie Aeme of Riverside 2d, 164467, Record Holstein cow for California: 24,690.0 lbs. milk, 1065.42 lbs. butterfat (ave. test, 4.32 per cent) for one year at 6 yrs. 1 mo. old. Owner, A. W. Morris and Sons Corporation, Woodland, Calif.

number of Holstein herds tested from September 1, 1919, to January 1, 1920, were as follows:

7-day or longer.....	51 herds
30-day or longer.....	16 herds
Continuously	1 herd
Both short-time and long-time.....	18 herds
Long-time alone	3 herds
Total Holstein herds tested.....	54 herds

The leading short-time records (7 and 30-day records) held by California cows at the present time are given on page 12 of this circular.

Requirements for Advanced Registry.—If a cow calve on the day she is two years of age, or previous to that day, she must produce

7.2 lbs. fat in seven consecutive days; for every day that she exceeds two years of age at the time of calving, up to the day she is five years of age, the requirement is increased by .00439 of a pound of fat. This brings the increased requirement to 1.6 lbs. of fat per year; the requirement for a cow calving at just three years of age being 8.8 lbs. fat in seven consecutive days; at just four years of age, 10.4 lbs. of fat. After a cow reaches the age of five years, there is no increase in the requirement, which remains at 12 lbs. of fat.



Fig. 4. Willowmoor Vesta 4th, 34150, Record Ayrshire cow for California: 17,755 lbs. milk, 753.18 lbs. butterfat (ave. test, 4.24 per cent) for one year at 4 yrs. 5 mos. old. Owner, E. B. McFarland, San Mateo, Calif.

Applications for Tests.—Applications for dairy tests should be made directly to the officer in charge of Advanced Registry in the breed association concerned. A list of these officers is given below:

Ayrshires	J. G. Watson, Sec'y, Brandon, Vt.
Brown Swiss	Ira Inman, Sec'y, Beloit, Wis.
Guernseys	Wm. H. Caldwell, Sec'y, Peterboro, N. H.
Holstein-Friesians.....	M. H. Gardner, Supt., Delavan, Wis.
Jerseys	R. M. Gow, Sec'y, 324 W. Twentythird St., N. Y.
Milking Shorthorns	J. L. Tormey, Field Representative, A. S. B. A., 13 Dexter Park Ave., Chicago.

The owners should arrange with the Assistant in Dairy Tests, University Farm, Davis, California, for the conduct of tests, at least

a week before it is desired to have these commence, in order that arrangements may be made to have a supervisor in readiness when wanted. Applications for tests to be conducted within a certain month should be filed before the fifteenth of the month.

Expense of Tests.—Since no special funds are available to defray the expenses connected with the tests and as the breeders whose cows are tested are the chief beneficiaries of the work, certain charges are made for the tests that aim to cover all expenses connected therewith.



Fig. 5. Ruby Pietertje of Forest Hill 2d, 272974, Highest 30-day butterfat record for California and highest senior four-year old 7-day record for California: 7-day record, 667.9 lbs. milk, 31.797 lbs. butterfat (ave. test, 4.79 per cent); 30-day record, 3144.5 lbs. milk, 129.572 lbs. butterfat (ave. test, 4.12 per cent), both at 4 yrs. 8 mos. old. Owner, W. J. Higdon, Tulare, Calif.

In order to place all farmers of the state on an equal footing, flat rates are charged for the conduct of dairy tests. The rates that have been effective since January 1, 1920, are as follows:

For each 7-day test	\$35.00
For each 30-day test	120.00
For each additional day	4.00
For each 2-day test	10.00
For each 1-day test	7.50
For each 2-day test without preliminary milking	9.00

The prices given include all direct expenses of the test to breeders, except room and board of the supervisor while on duty, and transportation to and from the nearest railway station or ranch where

tests are conducted. The College furnishes the necessary apparatus for conducting dairy tests, except a Babcock tester and sulfuric acid, which must be supplied by the breeder. He also provides milk sampling jars and packing for composite sample bottles, and pays notary fees, if any.

As there are no college funds available for this work, it is imperative that testing bills be paid promptly. No new tests will be authorized for a given breeder unless previous testing bills are paid within thirty days.

Number of Cows that may be Tested at a Time.—The following statement shows the maximum number of cows that may be tested at a time by one supervisor :

Number of milkings per day	Maximum number of cows	
	On short-time ("Official") tests	On yearly ("Semi-official") tests
4 times	6	8
3 times	8	10
2 times	12	15

If cows placed on a test are milked different numbers of times a day, the maximum number to be tested at a time shall be that allowed for the largest number of milkings.

The numbers of cows given above are as high as a conscientious and experienced supervisor can test at a time, as a rule, when composite samples are taken, the calculations kept up to date, and the rules as to the supervision of the tests are carefully observed in all details.

Tests for California Breeders of Dairy Cattle.—Advanced-Registry tests of cows owned by the following California breeders of Ayrshires, Guernseys, Holsteins, Jersey, and Dairy Shorthorns were conducted during the year 1919.

Ayrshire.—George W. Fry, La Honda; E. B. McFarland, San Mateo; J. Henry Meyer, Watsonville; University of California, University Farm, Davis.

Guernsey.—Adamson Corporation, Van Nuys; J. H. Bowles, Merced; W. H. Dupee, Santee; Elliot-Brant Rancho, Owensmouth; J. W. Gemmer, Ripon; A. B. Humphrey, Escalon; B. E. Nixon, Yountville; Palo Alto Stock Farm, Palo Alto; W. H. Saylor, Nicolaus; L. Dee Smith, Berkeley; University of California, University Farm, Davis; A. J. Welch, Redwood City; G. W. Wilder, Colton.

Holstein-Friesian.—K. W. Abbott, Ripon; Mrs. Anita M. Baldwin, Santa Anita; E. D. Barry, Jr., Daggett; H. G. Ball, Tulare; J. W. Benoit, Modesto; A. M. Bibens, Modesto; Bock Bros., Pacheco; Bonita Stock Farms, Lodi; Bridgford Holstein Co., Patterson; Burr Creamery Co., Los Angeles; California George Junior Republic, Chino; J. M. Campbell, Escalon; J. M. Christen, Pacheco; H. E. Cornwell, Modesto; F. A. Darling, Escalon; H. A. De Wolf, Modesto; Mrs. Annie Donders, Fresno; D. D. Ellmore, Baldwin Park; R. Fisher, Carlotta; E. E.

Freeman, Modesto; J. S. Gibson Co., Williams; T. J. Gist, Tulare; Gotshall and Magruder, Ripon; R. F. Guerin, Tulare; Harlan Co., Woodland; Henderson Co., Galt; W. J. Higdon, Tulare; J. D. High, Modesto; Harry Hill, Tulare; Chas. F. Heil, Santa Ana; M. M. Holdridge, San Jose; Fred Hartsook, Lankershim; R. L. Holmes, Modesto; J. J. Jeffries, Burbank; E. J. Kelleran, Modesto; Arthur B. Kendall, Modesto; F. W. Kiesel, Sacramento; S. G. Kounias, Modesto; Lee-man and Kilgore, Ripon; Lewis Co., Hollister; Los Angeles County Farm, Hondo;



Fig. 6.—Location of pure-bred dairy herds in California, in which Advanced-Registry tests were conducted during 1919.

W. F. Mitchell, Tulare; A. W. Morris and Sons Corp., Woodland; Mrs. Catherine Mays, Newman; George Maze, Modesto; James Gillivray, Sacramento; W. D. Millard, Arcadia; Millbrae Dairy, Millbrae; Jas. Miller, Modesto; E. M. Morrow, Modesto; Napa State Hospital, Napa; Palo Alto Stock Farm, Palo Alto; J. D. Patterson, Patterson; Pecho Ranch and Stock Farm, San Luis Obispo; J. P. Phillips, Dixon; J. H. Posty, Atwater; Pottinger Sanatorium, Monrovia; Fred D. Ross, Hanford; John Saxer, Modesto; O. A. Shirk, Modesto; H. H. Sisson, Willits; Geo. A. Smith, Corcoran; H. E. Spires, Caruthers; A. J. Stalder, Riverside; E. R. Stalder, Nuevo; Fred Stenzel, San Lorenzo; R. C.

Sturgeon, Tulare; Toyon Farms, Los Altos and Lawrence; University of California, University Farm, Davis; H. E. Vogel, Fresno; H. E. Van Blaricon, El Monte; H. M. Warden, San Luis Obispo; Alex. Whaley, Tulare; Whittier State School, Whittier; E. F. Young, Modesto.

Jersey.—Bonnikson Bros., Ferndale; G. E. Brown, El Monte; D. F. Conant, Modesto; H. H. Cook, Chino; J. W. Coppini, Ferndale; E. W. Doane, Merced; E. R. Eichner, Selma; F. W. Elleby, Modesto; E. E. Greenough, Merced; Dr. H. G. Gross, Eureka; W. G. Gurnett, Orland; Dr. H. W. Hand, Orland; C. D. Hayworth, Modesto; Hearst Estate, Pleasanton; A. A. Jenkins, Tulare; S. P. Kelly, Ferndale; Guy H. Miller, Modesto; W. H. Rough, Arlington; J. E. Thorp, Lockeford; University of California, University Farm, Davis; F. H. Van Derpoel, Riverside; F. M. West, Fullerton; J. E. Wherrell, Riverside; E. J. Wilson, Ripon.

Milking Shorthorn.—Alexander and Kellogg, Suisun.

Supervisors.—Official tests are carried on by representatives of the College of Agriculture, called supervisors. These men are for the most part students of dairy farming who are following official test work for a time before becoming herdsmen or dairy farmers. Most of them are graduates of one of the regular courses offered by the College of Agriculture, or have spent some time as students in the Dairy Division at the University Farm. There is also a group of ex-service men who have been trained in this type of work under the Federal Board to overcome handicaps received in line of duty.

Experienced and trained young men who wish to take up dairy-test work are invited to communicate with the Superintendent of Advanced-Registry Tests, University Farm, Davis. It offers exceptional opportunities to see some of the best dairy cattle in the state, to become acquainted with dairy farming and agricultural conditions throughout California, and to get in touch with progressive breeders and feeders in all parts of the state. Where the training of candidates for this work is considered insufficient, opportunities for complete preparation will be afforded at the University Farm. All expenses are met, equipment supplied, and fair wages paid to supervisors while on duty.

It is for the best interests of all breeders of dairy cattle in California that the best type of men that can be secured be employed and retained as test supervisors. They are asked, therefore, to furnish our men so far as possible with good living conditions and to aid them in the discharge of their duties by providing good facilities for doing their work.

The following supervisors have been employed in the work of dairy testing during the present season up to January 10, 1920:

B. F. Ackerman, Walter J. Adams, George Ambrose, L. J. Birge, Henry Bivens, C. Casanova, Frank A. Clelland, Howard B. Cobb, M. C. Collarino, W.

C. Collins, G. H. Cronje, J. A. Daroux, E. R. Davis, Thomas Dooner, Van F. Dunlap, Robert Edwards, Bruce Q. Engle, Leo Flynn, Arthur Folger, L. W. Garretson, Clarence Hayford, Carl Helgestad, M. H. Herspring, George Holmes, George D. Horne, A. L. Ingebritson, W. H. Irwin, Roy Ish, Lyman Kanst, F. P. Keen, E. J. Kelleran, Albert L. Kelley, George P. Kelsey, Harry H. Kent, J. Russell Kerr, Wendell L. Kingsley, Charles Klint, G. E. Knight, Phillip Livingston, Warren Loree, J. A. Lorentzen, H. W. McCormick, G. A. Moore, John Nielsen, C. C. Norton, Samuel E. Olson, L. Owen, Jack Pace, A. P. Peacock, Geo. Pfaff, Harry W. Platz, J. H. Porter, M. H. Raven, Carl Robertson, P. Rudolph, Macedoine Rouel, G. L. Runyon, E. R. Shepherd, Ira C. Smith, Howell A. Smith, E. L. Stanley, Trevanen Johns Taylor, Lawrence W. Taylor, Russell D. Thomas, H. D. Wiadro, A. R. Wickham.

Verification of test reports: Miss L. Coreoran.

Check tests of composite samples: Mrs. M. F. Alexander.

LEADING RECORDS OF PRODUCTION IN CALIFORNIA

A. Yearly Records.—The yearly records in the different dairy breeds for the various ages classified by the respective breed associations and for tests made in California up to March 1, 1920, are as follows. The name of the owner appears under the name of the cow.

AYRSHIRES

Name of cow and owner	Age Years	Milk Lbs.	Butterfat Per cent	Lbs.
Willowmoor Cherry University of California.	Over 5	12,601.0	4.37	551.41
Willowmoor Cherry University of California.	4½–5	10,465.0	4.25	445.01
Willowmoor Vesta 4th E. B. McFarland.	4–4½	17,775.0	4.25	753.18
*Rena Ross 3d J. Henry Meyer.	3–3½	13,710.0	4.03	551.89

* Record made outside of state.

GUERNSEYS

Belladia W. H. Dupee.	Over 5	19,631.9	4.77	934.05
Imp. Brittleware Mistletoe G. W. Wilder.	4½–5	14,467.2	5.19	751.38
Imp. Dawn of Sarnia W. H. Dupee.	4–4½	13,897.8	5.46	759.38
Jessy Rose of Edgemoor W. H. Dupee.	3½–4	9,676.5	6.35	614.50
Imp. Donnington Goldie 5th W. H. Dupee.	3–3½	17,861.7	4.46	796.52
Jesebel of Edgemoor W. H. Dupee.	2½–3	12,434.9	6.02	748.32
Imp. Miss Violet of St. Andrews W. H. Dupee.	2–2½	9,104.3	6.64	604.18

HOLSTEINS

Name of cow and owner	Age Years	Milk Lbs.	Butterfat Per cent	Lbs.
Aaggie Acme of Riverside 2d	Over 5	24,690.0	4.32	1,065.42
A. W. Morris and Sons Corp.				
De Kol of Valley Mead 2d	4½-5	20,326.4	3.98	809.37
A. W. Morris and Sons Corp.				
Aaggie Acme of Riverside 2d	4-4½	19,577.3	4.47	876.08
A. W. Morris and Sons Corp.				
De Kol of Valley Mead 2d	3½-4	17,709.3	4.09	725.02
A. W. Morris and Sons Corp.				
Johanna Princess Mooie 2d	3-3½	25,596.5	3.66	937.74
Palo Alto Stock Farm.				
Aralia De Kol Pontiac Mead	2½-3	18,362.5	4.06	745.95
A. W. Morris and Sons Corp.				
Miss Aaggie Acme Burke	2-2½	24,300.0	3.37	820.00
A. W. Morris and Sons Corp.				

JERSEYS

Name of cow and owner	Age Years	Milk Lbs.	Butterfat Per cent	Lbs.
Interested Jap's Santa	Over 5	15,569.4	6.04	940.72
University of California.				
Pansy's Lily S.	4½-5	9,609.9	5.61	539.37
D. F. Conant.				
Interested Jap's Santa	4-4½	13,308.5	6.05	805.72
University of California.				
Jewel of Venadera	3½-4	10,262.6	5.94	609.54
Guy H. Miller.				
Verde of Willowwood	3-3½	10,605.1	5.57	591.39
J. E. Wherrell.				
Interested Jap's Santa	2½-3	9,052.5	6.50	588.16
University of California.				
Mamie Owl	2-2½	7,830.3	5.56	435.14
D. F. Conant.				
Jewel of Venadera	Under 2	8,017.8	5.52	442.40
Guy H. Miller.				

MILKING SHORTHORNS

Name of cow and owner	Age Years	Milk Lbs.	Butterfat Per cent	Lbs.
Sylvia	4½-5	11,746.0	4.09	481.43
Alexander and Kellogg.				

B. Short-time Records.—The butterfat records on short-time tests held by California cows on March 1, 1920, are given below.

a. SEVEN-DAY RECORDS

Age Years	Name of cow and owner	Milk Lbs.	Butterfat Lbs. Per cent	Calc. butter (80%) fat Lbs.
Over 5	Adirondac Wietske Dairy Maid..	831.7	32.813 3.95	41.02
	Bridgford Holstein Co.			
4½	Ruby Pietertje of Forest Hill 2d	667.9	31.797 4.79	39.74
	W. J. Higdon.			
4	K. P. Idyl Segis	510.8	28.489 5.58	35.61
	McAlister and Sons.			
3½	Aralia De Kol Pontiac Mead*	511.8	27.537 5.38	34.42
	A. W. Morris and Sons Corp.			

* Record broken at time of going to press.

Age Years	Name of cow and owner	Milk Lbs.	Butterfat Lbs. Per cent	Calc. butter (80%) fat Lbs.
3	Miss Valley Mead De K. Walker A. W. Morris and Sons Corp.	688.6	29.445 4.28	36.81
2½	K. P. Tola Joe Gotshall and Magruder.	459.1	21.719 4.73	27.15
2	Tulip Walker Bridgford Holstein Co.	493.6	21.161 4.29	26.45

b. THIRTY-DAY RECORDS

Age Years	Name of cow and owner	Milk Lbs.	Butterfat Lbs. Per cent	Calc. butter (80%) fat Lbs.
Over 5	Adirondac Wietske Dairy Maid.. Bridgford Holstein Co.	3,603.1	126.646 3.51	158.31
4½	Ruby Pietertje of Forest Hill 2d W. J. Higdon.	3,144.5	129.572 4.12	161.97
4	K. P. Idyl Segis* McAlister and Sons.	2,483.6	105.641 4.25	132.05
3½	Aralia De Kol Pontiac Mead A. W. Morris and Sons Corp.	2,194.4	110.472 5.03	138.09
3	Nattalene Walker Bridgford Holstein Co.	3,321.7	108.082 3.25	136.1
2½	Miss Valley Mead De K. Walker Anita M. Baldwin.	2,263.0	81.903 3.63	102.38
2	Miss Aaggie Acme Burke A. W. Morris and Sons Corp.	2,321.1	85.242 3.67	106.55

c. RECORDS MADE EIGHT MONTHS AFTER CALVING

Age Years	Name of cow and owner	Milk Lbs.	Butterfat Lbs. Per cent	Calc. butter (80%) fat Lbs.
Over 5	Margaret Aralia De Kol A. W. Morris and Sons Corp.	397.8	20.688 3.75	25.99
4½	Pet Salambo of Riverside A. W. Morris and Sons Corp.	396.2	14.857 3.75	18.56
4	Aaggie Acme of Riverside A. W. Morris and Sons Corp.	329.8	14.419 4.37	18.02
3½	De Kol of Valley Mead 2d* A. W. Morris and Sons Corp.	308.5	13.743 4.45	17.18
3	Miss Valley Mead De K. Walker A. W. Morris and Sons Corp.	409.5	20.117 4.91	25.15
2½	Miss Valley Mead De K. Walker Anita M. Baldwin.	404.2	17.066 4.22	21.33
2	Miss Aaggie Acme Burke A. W. Morris and Sons Corp.	325.3	16.091 4.07	20.11

High-producing Cows.—The following California cows have produced more than 1000 lbs. of butterfat in one year.

Name of cow and owner	Fat, lbs.	Milk, lbs.	Ave. test
Aaggie Acme of Riverside 2d A. W. Morris and Sons Corp.	1,065.42	24,690.0	4.32
Laurameka Palo Alto Stock Farm.	1,061.27	29,899.0	3.55
Tilly Alcartra A. W. Morris and Sons Corp.	1,058.42	33,425.3	3.17

* Record broken at time of going to press.

The following California cows have produced more than 30,000 lbs. of milk during one year.

Name of cow and owner	Milk Lbs.	Fat Lbs.	Ave. test	Age of cow Yrs. Mo.	
Tilly Alcartra	30,451.4	951.23	3.12	5	1
A. W. Morris and Sons Corp.	33,425.3*	1,058.42	3.17	9	2
Winnie Korndyke Cornucopia De K. J. S. Gibson Co.	31,034.2	960.85	3.10	8	8
Raphaella Johanna Aaggie 3d	30,637.2†	826.73	2.70	6	4
Napa State Hospital.					
Ormsby Segis Marie	30,249.0	958.64	3.15	5	0
Toyon Farms.					
Cows of all breeds producing over 30,000 lbs. milk in one year				10	
Cows in California producing over 30,000 lbs. milk in one year				4	
(40 per cent of total number)					

* World's milk record.

† Strictly official world's milk record.

RULES GOVERNING SUPERVISION OF TESTS

The dairy tests in the state are conducted under the following rules:

1. In commencing a test the supervisor must satisfy himself as to the identity of the cows to be tested. Where any doubt exists, outline drawings showing markings of cows shall be submitted with test reports.

2. He must be present at each and every milking during the test and see to it that the pail as weighed contains nothing but the milk drawn from the cow under test.

3. Only one cow shall be hand-milked at a time, and the supervisor must in every case be in a position to observe the milker during the whole milking. In herds where machine-milking is practiced, the cows regularly milked by one operator may be milked at a time.

4. Immediately after the milk is drawn at each milking the supervisor shall take charge of the pail and contents, weigh the same on scales provided by the College, and at once enter the exact weight of the milk on his records.

5. An extra pail shall be provided by the owner, and the milk shall be poured from one pail to another until thoroughly mixed, or it may be thoroughly stirred by means of a dipper. The supervisor shall then take a correct sample of the milk sufficient for his test and for the composite sample.

6. All samples of milk shall be kept under lock and key or in the supervisor's sight until tested.

7. The fat determinations shall always be made in duplicate, using properly calibrated glassware, and both determinations recorded. The average must be used in computing the amount of fat. The samples

taken at any one milking shall not be thrown away until satisfactory duplicate tests of the milking are obtained.

8. The reading of the tests shall be made at a temperature of 130 to 140 degrees F. If duplicate determinations vary more than .2 per cent, the test must be repeated.

9. A composite sample of all milkings for each cow on the test shall be correctly taken and preserved; these samples shall be forwarded to the University Farm immediately upon completion of a two-day or seven-day test; and in the case of tests for longer periods, at intervals not to exceed two weeks. Suitable containers for such composite samples shall be furnished by the owners of the cow on test.

10. The supervisor shall report to the official in charge of Advanced-Registry testing in the State any violations of the rules of the breed association or of the college on the part of the owner or attendants that may come to his attention.

11. Supervisors are required to take an oath of office each year, which promises honesty and obedience to rules in carrying out tests.

As a further check the various breed associations require retests whenever an exceptional production is obtained. In short-time tests these are "constant watch," and two supervisors take part in all weighings and determinations. In long-time tests a different supervisor carries on another test within ten or fifteen days of the first.

The tests of composite samples are made by a trained assistant in the Division of Animal Husbandry at University Farm, Davis. This testing constitutes a check on the work done by supervisors in the field. The supervisors are also visited from time to time while at work on ranches. Where marked slackness, inaccuracy, or dishonesty are discovered the supervisor will be promptly dropped from the force. Breeders are requested to keep this office informed of the testing work done for them, as it is important to know of the character of the field work of supervisors, whether it be commendable or deficient.

